THE BURGLAR'S STORY

"I WAS of good and respectable parentage," began the burglar, "and was given a more than ordinary education. ordinary education. was at work in one of the principal safe manufactories of the United States. I had always a natural taste for working in metals, and was now in a position to gratify my ambition to become an expert in the business. At the age of 24 I was selected from the force of thirty hands to expend all my time and talent in one particular branch of the work, namely, the locks and doors. This was many years ago and the modern improvements had not been dreamed of. But several kinds of combination and permutation locks had been patented and one of the best of these I was placing upon our hardened steel doors. No ordinary burglar, however, would have thought of wasting his time and taking the risks with such a lock; consequently, our sale of safes was large and profitable.

"I was receiving a good salary for my special work and imagined, like many others in life, that I was a favorite of fortune and that it would always last.

"From the position I occupied it was easy to fall into the companionship of the sons of the wealthy classes, and to drift with them into expensive—if not objectionable—habits. The alluring games of chance soon fascinated me with their golden favors. Intemperate habits in everything, together with loss of sleep, soon unfitted me for a fair day's work and I was discharged. Going from bad to worse I soon found myself the welcome companion of thieves and gamblers, and often not knowing where my next meal was to come from.

"Wandering aimlessly about the city with a favorite companion one day, we were passing the shop of an undertaker. My chum called my attention to a safe, which stood near a desk and fronted the open door of the office, and suggested that it might contain money, of which we were both in great need.

"'That lock and door are both my own make,' said I, as we halted a moment to glance at it, 'and I can open it in five minutes.'

"'You don't say that you can open that safe door in five minutes without knowing the combination of the lock?' said my friend, with astonishment.

"'I certainly can,' I answered, 'although the game might be too small for the risk. If we could get into the room, it's possible 'twould pay to look into it, on account of this smallpox epidemic. Notice that the back door is open,' I continued. 'That door opens into an alley. In passing here before when that door was closed, I've noticed a heavy lock on it and there's an iron bar across it on the inside.'

"'Let's wander around to the alley and look over the situation,' said my companion, 'and maybe we can get in tonight.'

"The alley seemed deserted. Coffins

I WENT TO WORK.

and their rough cases and rich burial caskets, finished and unfinished, stood at an incline against the wall, and on low tables the entire length of the room were long lines of those finished for immediate use, silently waiting their occupants.

"As my eye took in the situation, I conceived a bright idea. Taking the arm of my pard, I hurried him away and, when by ourselves, told him my plan and the ease with which that safe might be examined.

"'I shall put on my rubber shoes,' said I, 'and sneak in that back door some time before it is closed for the night. Then I'll crawl under one of those low wide tables, where nobody'll notice me. If I'm discovered, I'll play the dead-drunk dodge. At precisely midnight, I'll enter the front office and open the safe. At that hour exactly I shall expect you to be on the watch in the alley or hallway on the other side of the street. You shall give me a certain signal that you are there, and we'll agree on another should any person pass the building when I'll get out o' sight. Another whistle shall signify that the coast is clear. We may get only a little jag, and then again we may get a good big pull.'"

"I had quietly crawled under the table. Soon afterward, the rear door of the building was closed, barred and locked for the night. Customers and others were coming and going, and coffins were selected and removed within a few feet of me until after 11 o'clock. I began to think I was to be a prisoner for the night.

"Just as I could hear talk of closing up the establishment, an elderly man hastily entered and in low tones conversed with one I imagined to be the proprietor. I caught a few words. 'It was impossible for me to get here earlier,' he was saying, 'but here's the money I collected this afternoon;' and, from my hiding place, I looked toward the desk and saw a roll of bank notes pass to the hand of the funeral director, who quietly deposited it in the safe. The knob clicked as it fastened the bars in place and then all parties passed out of the building, leaving the one gas jet full blaze in the office.

"The instant all was quiet on the street, I crawled out from under my coffin table. Quickly turning off the gas, I waited for the low whistle of my pal, hearing which, I went to work.

"With my dark lantern in one hand, inside of my five minutes I had all the valuable contents of that safe in my pocket, had relocked it and was cautiously unbarring the rear door. That done, and the key withdrawn, I dodged back into the office, listened an instant and heard the signal from my pal that the street was deserted. Then I quickly relighted the gas jet, glided through the rear room and stepped into the alley. I was careful to close the door after me, and plainly heard the iron bar fall into its place in the bracket as I did so—I had placed it in such a position that I knew it would when the door closed. Then I locked it and placed the key in my pocket.

"Everything was absolutely as when the proprietor left the building, save the fact that the key to the rear door was missing—also the small matter of the contents of that safe.

"That small roll of bank notes contained $350, and I found $45 more in another drawer—a fair night's work for two penniless thieves.

"But, ye gods and little fishes! what an inextricable rumpus it kicked up in that firm. There were three partners, and, as everything was found in such good condition the following morning, with the single exception that the man who locked the alley door in the evening must have placed the key in his pocket and should account for its loss, it was supposed—and talked of openly—that, for some unknown reason, the firm had robbed itself, as no outside party could have entered, worked at the safe with the gas burning—the police on duty testified that it was burning constantly that night—and left the building with the safe locked on the same combination and with every door locked or barred. Detectives employed laughed at the idea of any outside parties' being implicated and winked significantly at each other.

"The business has since changed hands and the newcomers are more careful with the premises.

"I never made such an easy haul before, nor have I since," concluded Mr. Burglar, laughing heartily.

EXPLANATION OF FREAKS.

The Scientific Reasons for Our Dime Museum Curiosities.

Three weeks ago the Journal published a very interesting illustrated article on the medical diseases which produce the strange freaks of nature seen in the dime museums. By error the material in the article was credited to Dr. J. C. McGuire, an eminent physician of Washington. Some of the facts were obtained from a pamphlet, "Freaks, as pertaining to Diseases of the Skin," written by Dr. McGuire and read originally before the Medical Society of the District of Columbia last February. The illustrations and many of the deductions and statements were not, however, from Dr. McGuire, and for this reason he writes to have the Journal state that the article published was not his.—New York Journal.

A Quarter Acre Lot in Chicago.

The history of a quarter acre lot in Chicago reads like a romance. In 1830, when the population of the city numbered fifty souls, this quarter acre of raw prairie was worth $20. At $1.50 per day a man could have earned in 13 1-2 days enough to buy it outright. To-day it is worth $1,250,000. As the report of the Illinois Bureau of Statistics puts it: Six hundred average Illinois farms would not now exchange for that quarter acre of rare prairie land, and nearly 3,000 years of the labor of one man would be required to buy it. If 500 years before the Christian era some man had obtained employment at the equivalent of one dollar and fifty cents a day, had, like some wandering Jew, been preserved through all the vicissitudes of the centuries, had been miraculously sustained without expense for any of the necessaries or luxuries of life, had done his work regularly from that day to this 300 days in the year without losing a day, and had hoarded all his wages, his savings would not yet be enough to buy this quarter acre of prairie land at the mouth of the Chicago River.

Comparative Mortality of the World.

An eminent Italian statistician has been making inquiries into the comparative mortality of the countries of the world, and he has arrived at some interesting conclusions. The death rate per 1,000 inhabitants in 1892-94 was as follows: Australia, 13.2; Sweden, 17.2; England, 18.3; Scotland, 18.4; Ireland, 18.5; Holland, 19.6; Switzerland, 20.1; Belgium, 20.2; France, 22.3; Germany, 23.7; Italy, 25.7; Austria, 27.9; Hungary, 33.3. All thes countries except France and Ireland have reduced their death rate during the last twenty years. In Ireland it has increased, and in France it has remained stationary. In France, too, the death rate of persons in the prime of life is higher than in most other countries, and shows no tendency to decrease. In England the mortality is feeble in childhood and youth, relatively strong in the prime of life and old age, but is gradually diminishing.

From Paddy's Standpoint.

An Irishman whose chief occupation in life has been rock blasting obtained a position on a farm, and was one day seated outside vigorously churning butter with an old fashioned churn. Two former companions passing by caught sight of him, and, after stopping to contemplate the situation a moment, one of them suddenly exclaimed:

"Pon me conshinse, Terrence, but there's McManus, and he's gone crazy, sure enough! He's sittin' dhere wid a wooden dhrill, preparin' to put a blasht face."—Indianapolis Journal.

Encouragement.

She—"I don't see how you ever came to propose to me in the first place, if I am so utterly distasteful to you. I gave you no encouragement." He—"Oh, yes, you did. You turned the gas down so low that I could not see your face."—Indianapolis Journal.

The Hand of a Queen.

A delicate piece of sculpture is a model of Queen Victoria's hand, which is still a very handsome one, and is said to have signed more important state papers and been kissed by more important men than the hand of any other queen that ever lived.

The brooch continues to be a popular article of jewelry.

TO CROSS THE OCEAN IN JUST TWENTY-EIGHT HOURS.

A submarine boat has at last been invented which disposes of the question of power and speed by a novel method. Hitherto experiments in this line have been met by the difficulty of placing powerful engines in a small compass, where there is little air, and room, and where the disposition of the smoke has created serious obstacles to complete submersion for any considerable length of time.

Now, however, not only has a submarine boat been invented which will, as its inventor claims, propel itself through the water with less waste of power than any boat hitherto designed, but which is alleged to be able to accomplish the voyage from Europe to America in the incredibly short time of twenty-eight hours.

That is the rate of speed which Mr. Apostoloff, a Russian electrical engineer residing in London, claims to have been developed by the novel submarine boat built by him after long study and at much expense. The craft which he has built differs from all others of its kind in the process by which it is shoved through the water.

Hitherto all experimenters with submarine boats have adopted the screw principle, and the craft which they have designed were, in respect of locomotion, no different from the ordinary tug to be seen on the North River. All uniformly adopted the stern screw, which has not been improved in any important particular since it was designed by Ericsson.

Placed on a submarine boat, however, the stern screw developed weaknesses which were not manifest when it was applied to the ordinary craft that float on the surface. In a submarine boat the entire surface of the structure offers friction and resistance to the water, whereas in a floating boat only the submerged parts offer such resistance.

A submarine boat of 100 tons displacement offers thus more than three times the frictional surface of a boat of similar capacity floating in the ordinary manner. At the same time when the stern screw is applied, there is no corresponding increase of power.

Mr. Apostoloff has met this difficulty by entirely dispensing with the stern screw. He has made his boat the screw itself.

He has adopted the principle of the boring worm. The boat which he has designed worms its way through the water as truly as the ship's worm works from end to end of a plank by turning its body into a boring apparatus.

There is no stern screw in the submarine boat which Mr. Apostoloff has designed. In its place there only appears a huge rudder, capable of raising or lowering the boat in the water, and of deflecting it from side to side, as the steersman may wish.

About two-thirds of the outside surface of the boat revolves around a shaft which runs from end to end of the craft. To this outside surface a screw flange is fastened.

Thus, from the bow to a point considerably aft of midships, the exposed surface of the boat acts as a huge propelling screw. The entire boat works forward or backward, with hardly any waste of power, as truly as if it were working in a groove specially cut to fit it.

At the point where the revolving surface of the boat terminates the fixed portions of its body commences. The revolving parts of the boat constitute more than one-half of its exposed surface.

But it is only the outside shell that revolves. Inside the shell is the real body structure of the boat, and that remains fixed, hanging on its shaft in a permanent position.

The machinery which turns the forward part of the boat is stationed aft, but the whole inside of the structure is open to the submarine navigators, who may walk from end to end of their strange craft without discomfort. The principles of compressed air, of water condensation, of smoke combustion and of economy of fuel are adapted in this strange craft much as they have been by other experimenters in the same line.

It is claimed by the inventor that where the ordinary submarine boat using a stern screw would make a journey of fifty miles beneath the ocean (a thing that few of them have succeeded in doing), his boat could accomplish the journey from Europe to America in the same time. Mr. Apostoloff does not claim that his boat can stay under water much longer than other submarine boats, but he claims that it can outstrip any craft of the kind yet designed, and that the time will come in the near future when it will be adopted as a means of warfare by every civilized nation on earth.

The possibilities which this invention opens up are interesting and romantic. It is claimed by the inventor that so well has he economized force, wrecks of treasure ships lying at the greatest depths are within easy reach of his craft.

But a few minutes, he says, would be required to descend from the surface and steam to the bottom of the ocean in its deepest parts. There wrecks might be explored, strange fish captured and new forms of submarine life discovered.

By means of electric light furnished from dynamos connected with his engine, the bottom of the ocean might be illuminated not only at night but in places too deep for the daylight to penetrate. The submarine explorer might step from this boat to the bottom of the ocean, carrying in an aluminum case strapped to his shoulder a supply of compressed air sufficient to last him several hours.

This aluminum case might, through a small tube, supply power to an air gun specially designed for submarine use. Thus a new form of hunting might be provided.

The submarine explorer, his feet weighted down with lead, his head encased in a diver's helmet properly supplied with valves to permit of the escape of the vitiated air, might roam for hours on the bottom of the ocean, noiselessly approaching the strange animals supposed to inhabit the greatest depths and dispatching them by means of this newly designed weapon.

Mr. Apostoloff says that the after part of his boat can be supplied with a great pane of thick plate glass, capable of resisting high water compression. When the boat has descended to a great depth and it is desired to see what the passing submarine landscape may show, the covering may be slid back from this pane of glass, and the explorers may look out upon the novel sights presented by these unexplored regions.

Comfortably seated in easy armchairs, the navigators of his craft can touch a button which will throw a flood of electric light through the thick pane of glass, illuminating the ocean's bed at its greatest depths. Thus for hours they may, says he, recline at ease, as if they were in a Pullman car, and look out upon strange, new spectacles that present themselves to their view in rapid succession.

Here a wreck, there a great leviathan, then, perhaps, the Atlantic cable, again some huge crustacean, may be presented to the gaze of the submarine voyagers using his boat, and he even claims that priceless pearls may thus be found and that untold treasure is within the easy reach of the daring navigators.

To build and thoroughly equip a boat of this kind will, says Mr. Apostoloff, cost $100,000. Only a very rich man could afford a pleasure craft of this kind.

But it has been pointed out by the inventor that the possibilities of fame and pleasure afforded by this means far outstrip any to be found in other lines of expenditure. The young millionaire seeking novel adventure and fame, says Mr. Apostoloff, could find no better means of achieving his ends than by the construction of such a craft.

He might, he says, invite a select company of scientific men and congenial friends for a summer submarine cruise. The scientific men could find strange new forms of life, and perhaps discover the missing link so eagerly sought for by Darwin during the voyage of the Beagle.

The trip they could subsequently write about, conferring lasting fame upon their patron. The latter might arouse himself with his friends by taking short submarine hunting trips, finding ever new forms of life to study and secure.

The amazing speed which he says his boat has developed will, says the inventor, place the shore at all times within easy reach of the voyagers. From the middle of the Atlantic a run of fourteen hours under water would at any time place them within a port either in Europe or America, and thus the plunging boat, as its inventor calls it, could at any time be almost in touch with the outside world.

Experiment, says Mr. Apostoloff, has convinced him that his boat can navigate the surface of the seas almost as quickly as when completely submerged. But he says she has been specially designed for travel beneath the surface, where his novel propeller will find complete grasp upon the surrounding element.

THE SUBMARINE SCREW SHIP AS IT WOULD APPEAR IN MOTION.

Antiquity of Burnt-Wood Decoration.

It would be impossible to state positively when this art was first practiced. Burnt panels have been found in various parts of Europe, set into ancient furniture, chimney pieces and wainscoting. In the museums of Europe there are marriage chests, coffers and panels dating from the fifteenth century or thereabouts, upon which a species of low-relief woodwork, not unlike the so-called "fretsaw" work of to-day, has been applied or chiseled out, the flat surface being richly ornamented with fine traceries unmistakably burnt with heated points. Some years ago a New York artist, while wandering through the seashore villages of Wales, found in a peasant's hut a rare panel of burnt wood work of the Italian renaissance (about the fifteenth century). The fisherman had found it on the beach, where it had drifted from some wreck. In the sacristy of the little octagonal church of Sant' Ercolano at Perugia are some ancient chests which were quaintly decorated with hot irons some 400 years ago.—Century.

NEW USE FOR GLOVES.

Wrists Make Sentimental Tobacco Pouches for the Lover.

The wrists of the long evening gloves of the knowing are no longer thrust into the ragbag when the fingers have become incapacitated for further service. The most dainty and unique tobacco pouches are evolved out of these wrists, and the sentiment which has always attached to milady's glove lends an added and piquant charm to such a gift. Indeed the fad for these tobacco pouches bids fair to outdo all previous souvenirs, and the young man fortunate enough to receive one cherishes it with the most tender pride. They are, however, delightfully simple and easy of construction. They may be embroidered, painted in water colors or left severely plain, according to the degree of affection with which she regards the proposed recipient of her handiwork. One of the prettiest is of white kid plentifully besprinkled with violets, the gloves having graced an especial occasion where the donor wore violets, the gift of the present owner of the pouch. So much of sentiment, however, is not at all a necessary accompaniment of the souvenir. The top of the bag has narrow slits cut in it, and through these slits ribbon is run around twice, by which the pouch is drawn together like an old-fashioned bag or purse.

HARD ON CATS.

A French Government Commissioner Censures the Conduct of Official Cats.

The French Government has just had occasion to appoint a commission to inquire into the grievances of the cats in its employ. Their report is an amusing exhibition of official stupidity, and will rouse a righteous indignation in the bosom of all friends of the useful mouser. It appears that cats are kept in some of the French military magazines to keep down the surplus population of rats and mice. Their food is regulated by ministerial decree according to circumstances, and at present there is a regulation in force authorizing an expenditure of 2½ centimes per cat per diem. But this does not seem enough, as the unfortunate Governmental cats have grown extremely thin, so at last the Ministry appointed specialists to inquire into the matter. These have gravely reported that "the cats of the army are very slow to accustom themselves to the diet prescribed by the Government circular. Thus they seldom eat bread, and never lap up greasy water unless actually driven thereto by the pangs of hunger, so that they are dying off or else abandoning the military magazines."

THE PHILOSOPHIC DOG.

He Is Entertained Without Charge in the Best Restaurants of Paris.

"Chocolat," is a Parisian canine curiosity who has been attracting much public attention of late. He is nobody's dog, but has managed to play his cards so well that he can lunch at a fashionable restaurant near the Madeleine and dine in an equally select eating establishment in the Bois de Boulogne. Recently somebody has given him a brass collar, inscribed with the words, "Chocolat, the philosophic dog, who has no master." The animal managed to obtain free meals in the restaurants by killing rats. He is also to be seen occasionally at the cafe concerts in the Champs Elysees, but nobody knows where he sleeps. He is sometimes arrested as a vagrant, but his collar soon obtains for him a speedy release from imprisonment.

Here Is a Name for a Baby Girl.

The following list of female characters in Shakespeare's works, arranged alphabetically, offers valuable suggestions for the mothers of baby girls, says the New York World: Adriana, Aemilia, Alice, Anne, Andromache, Beatrice, Bianca, Blanche(?), Bona, Blanca, Calphurnia, Cassandra, Celia, Ceres, Charmian, Cleopatra, Constance, Cordelia, Cressida, Deademona, Diana, Dionyeza, Dorcas, Eleanor, Ellnor, Elizabeth, Emilia, Francisca, Gertrude, Goneril, Helen, Helena, Hermia, Hermione, Hero, Hippolyta, Imogen, Iras, Iris, Isabel, Isabella, Jacquenetta, Jessica, Joan, Juliet, Juno, Kate, Katherina, Katherine, Lavinia, Lucetta, Lucinia, Lychorida, Margaret, Margery, Maria, Mariana, Marina, Miranda, Mopsa, Nerissa, Octavia, Olivia, Ohelia, Patience, Paulina, Perdita, Phebe, Pirrynia, Portia, Regan, Rosalind, Rosaline, Silvia, Tamora, Thaisa, Timandra, Titania, Ursula, Valdes, Venus, Viola, Violenta, Virgilia and Volumnia.

A Story of Prof. Herkomer.

Here is a story of Prof. Herkomer, the English royal academician, from the Home Messenger. The artist has an old father who lives with him in his splendid home at Bushey. In his early life he used to model in clay. He has taken to it again; but his fear is that soon his hands will lose their skill, and his works will show the marks of imperfection. It is his one sorrow. At night he goes to his early rest, and when he has gone Herkomer, the talented son, goes into the studio, takes up his father's feeble attempts and makes the work as beautiful as art can make it. When the old man comes down in the morning he takes the work and looks at it and rubs his hands and says "Ha, I can do as well as ever I did."

PLAYING THE PIANO.

MR. H. A. KELSO ADVANCES A VALUABLE NEW THEORY.

Study of Anatomy, Physiology and Knowledge of Acoustics and Psychology Necessary for a Thorough Mastery of the Pianoforte.

(Chicago Letter.)

H. A. KELSO, of Handel Hall, Chicago, presents a new theory of piano playing based upon principles of anatomy, physiology, acoustics and psychology, and in an exhaustive article which he has published on the subject undertakes to show how piano playing may be reduced to a scientific basis. He advises the study of anatomy, that the teacher may learn to develop a good "piano hand," of physiology that we may learn the fundamental causes which operate in velocity playing. We learn, he says, to avoid and successfully treat weeping sinews and musician's camp. By the understanding and application of the laws governing muscle innervation we learn to control and husband the potent force termed nervous energy. Misdirected nerve energy makes sickly piano players and unhealthy music is the result. Extracts from his article follow:

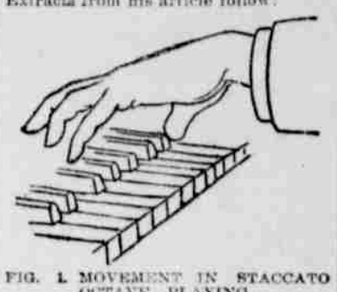

FIG. 1. MOVEMENT IN STACCATO OCTAVE PLAYING.

Better modes of developing the power of memorizing and of preserving untouched the pupil's individuality are the result of psychical study. That we should study acoustics "goes without saying," as we cannot know too much of sound. Pedal management, tonal coloring and the science of harmony are all better understood through a knowledge of the properties of acoustics. A knowledge of the anatomy of the hand, wrist, fore and upper arm gives the student greater facility in individual muscular control. In consequence of the control thus gained, the whole arm becomes more expressive. A crisply-leggiero effect can best be produced by energizing the muscles of the upper arm and those of the fingers, while relaxing the wrist muscles. This is a very important point, and is simply the application of the mechanical principle of the resistance being equal to the force of the blow.

A development of the pronator muscles in the forearm renders possible a good position of the hand for playing octaves, arpeggios, scales, chords and trills with the fourth and fifth fingers. Rolling octave playing is dependent upon a separated control of the supinator and pronator muscles from those of the fingers. Speed requires the shortening of the latent period of the muscle, and this can be accomplished only by taking up the slack of the tendons. The principal muscle concerned in producing a crisply staccato effect with finger action is the extensor, as upon this muscle depends the brevity of tone. By elevating the wrist, curving the second finger and depressing it at the knuckle-joint, the finger is in the best possible position for producing the effect.

The physiology of velocity playing is a subject of great interest to the practical piano teacher. In some persons rapidity of movement is natural, the muscular tissue is very irritable and exercises of speed do not demand great effort. In others the muscles, although energetic, obey the orders of the will with considerable slowness. A great expenditure of nervous energy is necessary to obtain a rapid movement. Illustrations of these differences may be noticed in the gymnasium, in fencing, boxing, rowing, walking and in piano playing. Pflueger is authority for the statement that when a nerve is stimulated by action of the will or otherwise, the stimulus received by the nerve increases in intensity as it reaches the muscle.

The three attributes of tone are force, pitch and quality. Force is dependent upon the amplitude of the vibrations. Pitch is dependent upon the vibrational number—the greater the number the higher the pitch. From these facts we deduct principles of study which are practicable to an intelligent student of piano playing. The overtones of tones sounded in the upper registers are of such great vibrational number that the ear fails to establish a definite pitch for them. Then, again, the waves of

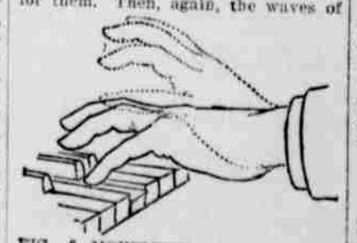

FIG. 2. MOVEMENT IN STACCATO OCTAVE PLAYING.

such tones are so short that they vanish almost immediately after sounding; therefore the pedal, which permits the tone to be re-enforced, may be used more freely in the upper register than in the middle or lower. One tone sustained by the pedal in the middle is equal in intensity to about four in the upper register. It is possible by a delicate manipulation of the pedal to obliterate the discordant harmonies in the upper, without losing an organ point in the lower register, which sometimes of necessity must be sustained by the pedal.

A point which is of equal importance with the manner of striking is that of the manner of leaving the keys, for upon this hinges the entire system of legato octave playing. Wide skips, such as a bass note and its chord, and broad intervals either in the accompaniment or melody, may be made to sound legato without the use of the pedal, by releasing the finger from the key slowly, thus damping the tone gradually. Many beautiful effects may be produced by this use of the pedal.

All movements of the body are either natural, habitual or hereditary. In certain states of consciousness we bring into play certain muscles just as naturally as water seeks its lowest level. It is for this reason that a pupil is sometimes taught to play a passage with widely differing movements of the hand and arm by different teachers. Thus it not infrequently happens that an instructor scatters broadcast over the land, through his pupils, peculiarities and mannerisms which he inherited from his ancestors. It may readily be seen that this is radically wrong, and that such would not be the case were all teaching based on philosophic principles.

In playing the piano habits will necessarily be formed, and movements based on the natural laws of expression of the body are more easily acquired and when acquired enable us to express musical thoughts more clearly and more forcibly than habits formed at haphazard. Technic, as applied to piano playing, is the power to express musical thoughts. This involves not only the ability to play the proper notes with correct fingers, but requires such control of the muscles and nerves that all gradations of tonal coloring may be expressed. Piano playing has been compared to an electric current—the musical thought emanates from the brain; passes through the nerves which move the muscles to be used, the finger strikes the key, the hammer strikes the wire, which in its turn produces a tone—the ear conveys the tone back to the brain, thus completing the circuit. Weak or sluggish muscles, therefore, not readily yielding themselves to the nervous stimulus flowing from the brain, will break the circuit, and the musical phrase will fall short of the musical conception.

In piano playing the purely mental intellectual phrase finds its expression in the circumscribed movements of the fingers and hand, using the knuckles or wrist as the center of motion. Passages from Bach's "Fugues and Inventions" admirably illustrate this statement. An emotional phrase demands more freedom of movement, which the firmness of the elbow—the emotional center—and length of the forearm readily supply. Climaxes and passionate outbursts of musical feeling demand the added strength and wider swing through space of the entire arm from the vital center of the shoulder.

It is not always necessary that such broad gestures from the shoulder as are used in oratory should be used in playing, as the energy can be brought from the shoulder, the vital center, also so from the mental or emotional centers or from various combinations of the vital, mental or emotional centers without "tearing passion to tatters." This knowledge of the psychological divisions of the arm gives clear and exact reasons for the use of the upper forearm, wrist and fingers in playing, a subject which has heretofore been misty, and formulates thoroughly the principles of all varieties of touch.

I consider the wrist the distributing center of the energy of the upper arm and forearm. It is impossible for the nervous stimulus from the brain to be properly conducted to the finger tips when the many tendons that pass through the wrist are tense. Almost every pupil beginning the study of the piano has some unconscious mannerism or trick

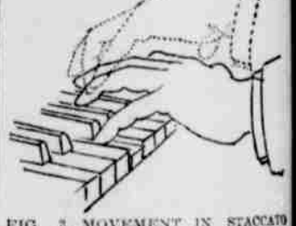

FIG. 3. MOVEMENT IN STACCATO OCTAVE PLAYING.

peculiar to himself of using the agents of expression. Before eradicating these bad habits and building up those which are correct, a certain condition of passivity or relaxation must be achieved, just as the potters' clay must be rendered soft and plastic before it can be modeled into the desired forms. I find for this purpose the Delsartean exercises known as relaxing or derivating of inestimable value to the beginner and advanced student alike.

We can utter so many words with one breath, and when that is exhausted we must draw upon the reservoir—the air—for another supply. We can play a rapid succession of notes with a given supply of nerve energy, and when that is exhausted we must draw upon the reservoir—the brain—for another supply. This necessity of our physical nature is the basis of rhythm, and if the regularly recurring inclination to build up the waste is unheeded, health and strength will be impaired. Do not wait until a sensation of weariness is felt before renewing the energy, as we should no more play with exhausted strength than speak with exhausted breath.

While conscious technic kills expression, the very core of the true system of technical expression is embodied in Hamlet's advice to the players: "Suit the action to the word," which, freely adapted, may be made to read: "Suit the technical interpretation to the musical thought."

Angels' Food.

The secret in making angels' food lies in the baking of it. Sift one cup of flour and one teaspoonful of cream of tartar several times through a fine sieve. Beat the whites of nine eggs to a stiff froth and to them add one cup and a half of sifted granulated sugar; mix carefully into this stirring constantly, the sifted flour, and add one teaspoonful of extract of vanilla. Pour this batter into an ungreased pan and bake in a slow oven for 45 minutes. When baked, turn the pan upside down on something that will admit of the air passing under it, and allow it to stand until the cake falls from the tin. Ice with white icing. Be careful in making this cake to have all the ingredients as light as possible.

A Plug.

"Popper," the little boy asked, "what kind of a horse is that they call a plug?"

"A balky horse, my son. They call him that because he is a stopper."—Cincinnati Enquirer.

Whenever we do wrong something good in us dies.